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Lego: Embracing Change by Combining BI with a Information System

CASE STUDY

The LEGO Group, which is headquartered in Billund, Denmark, is one of the largest toy manufacturers in the world. LEGO's main products have been the bricks and figures that children have played with for generations. The Danish company has experienced sustained growth since its founding in 1932, and for most of its history its major manufacturing facilities were located in Denmark.

In 2003, LEGO was facing tough competition from imitators and manufacturers of electronic toys. In an effort to reduce costs, the group decided to initiate a gradual restructuring process that continues today. In 2006, the company announced that a large part of its production would be outsourced to the electronics manufacturing service company Flextronics, which has plants in Mexico, Hungary, and the Czech Republic. The decision to outsource production came as a direct consequence of an analysis of LEGO's total supply chain. To reduce labor costs, manually intensive processes were outsourced, keeping only the highly skilled workers in Billund. LEGO's workforce was gradually reduced from 8,300 employees in 2003 to approximately 4,200 in 2010. Additionally, production had to be relocated to places closer to its natural markets. As a consequence of all these changes, LEGO transformed itself from a manufacturing firm to a market-oriented company that is capable of reacting fast to changing global demand.

LEGO's restructuring process, coupled with double-digit sales growth in the past few years, has led to the company's expansion abroad and made its workforce more international. These changes presented supply chain and human resources challenges to the company. The supply chain had to be reengineered to simplify production without reducing quality. Improved logistics planning allowed LEGO to work more closely with retailers, suppliers, and the new outsourcing companies. At the same time, the human resources (HR) department needed to play a more strategic role inside the company. HR was now responsible for implementing effective policies aimed at retaining and recruiting the most qualified employees from a diversity of cultural backgrounds.

Adapting company operations to these changes required a flexible and robust IT infrastructure with business intelligence capabilities that could help management perform better forecasting and plan-

ning. As part of the solution, LEGO implemented SAP business suite software. SAP is a company that specializes in enterprise resource planning (ERP) solutions, is one of the leading software companies in the world. SAP's software products include applications designed to efficiently manage a company's essential functions and processes. LEGO chose to implement SAP's Supply Chain Management (SCM), Product Lifecycle Management (PLM), and Enterprise Resource Planning (ERP) modules.

The SCM module includes essential functions such as supply chain monitoring and forecasting, planning, and inventory management. The PLM module enables management of product development processes and system integration. The HCM module includes, among other applications, Human Capital Management (HCM) applications for personnel administration and development.

SAP's business suite is based on a three-tier client-server architecture that has been adapted to the new Service-Oriented Architecture (SOA) available in the latest versions. In the first tier, a client interface provides a graphical user interface (GUI) on a laptop, desktop, or mobile device that sends requests to the application servers—the second tier in the architecture—to process clients' requests. In turn, the application servers send the processed requests to the database system—the third tier—which stores more relational databases. SAP supports databases from different vendors, including those offered by Oracle, Microsoft, and IBM. The relational databases store data on LEGO's products, production, supply chain, and thousands of other data. Users can easily use the SAP query language to retrieve data from the databases, because it does not require technical skill. Additionally, the architecture enables authorized personnel to access the database system from various locations, including the United States, Europe, America, and Asia.

SAP's ERP-HCM module includes functions such as "Talent Management" for handling employee administration and time management. These